



January 27, 2000

**FEDERAL EXPRESS
OVERNIGHT DELIVERY**

Mr. Craig Zeller, P.E.
Remedial Project Manager
United States Environmental Protection Agency
Region IV
61 Forsyth
Atlanta, Georgia 30303

Subject: Sluice Gate Installation Evaluation – Woodside I & II
Sangamo Weston/Twelve Mile Creek/Lake Hartwell Superfund Site
Operable Unit No. 2, Pickens, South Carolina

Dear Craig.

As requested by EPA, an evaluation was performed at the Woodside I and II dams located on Twelve Mile Creek to determine the feasibility and costs associated with the installation of sluice gates as an alternative to the hydraulic dredging currently being implemented to bypass sediments. These hydroelectric projects are owned and operated by CHI Energy, Inc.

The flushing of sediments utilizing sluice gates is a viable option at both Woodside I and II for the bypassing of sediments. This practice is currently being utilized by CHI Energy, Inc. in South Carolina at the Upper and Lower Pelzer Projects. Attached for your review is the "Sedimentation Plan, Upper and Lower Pelzer Hydroelectric Projects, FERC Numbers 10254-000, 10253-000" detailing CHI's requirements for sediment flushing.

A site visit was performed by a structural engineer at both dams and it was determined that it is feasible to construct a concrete structure at each location on the downstream side to allow for the installation of sluice gates. The structure would consist of a heavy steel structural beam and column support system to support the gate and its operating system and maintenance platforms. The support structure would be anchored to the dam face and rock foundation using chemical anchors. The integrity of the rock and concrete appear to be adequate for this type of application, which must be confirmed through further testing if the project were to proceed. The costs associated with this work at both Woodside I and Woodside II are estimated at \$610,000. A detailed breakdown of the cost estimate is attached for your review.

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Mr. Craig Zeller, P.E.
United States Environmental Protection Agency
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Please call me if you should have any questions or require any additional information.

Sincerely,

RMT, Inc



Clifford E. Kirchof, Jr.
Project Coordinator

Enclosure.

cc Brian Curtis, II
John Hanson
Beth Harris
Mike Parker
Central Files (2)

Sluice Gate Installation Cost Estimate
Woodside I & II

Description	Costs	Subcontractor
General Conditions	\$ 60,000 00	RMT
Design	\$ 25,000 00	O'Neal
Mobilization	\$ 30,000 00	All
Clearing	\$ 15,000 00	TBD
Testing	\$ 20,000 00	O'Neal
Foundations	\$ 65,000 00	Heyward Baker
Concrete	\$ 20,000 00	TBD
Structural Steel Material	\$ 40,000 00	Hall Contracting
Structural Steel Erection	\$ 90,000 00	Hall Contracting
Equipment	\$ 130,000 00	Craft
(Includes 2 sluice gates w/ accessories)		
Electrical	\$ 35,000 00	TBD
Subtotal	\$ 530,000 00	
RMT Markup (5%)	\$ 26,500 00	
Contingency (10%)	\$ 53,000 00	
Total	\$ 609,500.00	

FROM: CHI ENERGY

FAX NO.: 8642819634

11-01-99 15:24 P.02

Sediment Management Plan For our Pelzer sites

SEDIMENTATION PLAN

UPPER AND LOWER PELZER HYDROELECTRIC PROJECTS

FERC NUMBERS 10254-000
10253-000

By: Aquenergy Systems, Inc.
Post Office Box 512
Greenville, SC 29602

August 17, 1989

Article 401 Sedimentation Plan
Pelzer Lower Hydroelectric Project Number 10253-000
Pelzer Upper Hydroelectric Project Number 10254-000

Licenses for the Pelzer Lower Hydroelectric Project Number 10253-000 (Lower Pelzer Dam) and the Pelzer Upper Hydroelectric Project Number 10254-000 (Upper Pelzer Dam)(collectively, the "Projects") require that Soft Care Apparel, Inc. (Soft Care) file with the Federal Energy Regulatory Commission (the "FERC") a plan to minimize the impact to the aquatic resources of the Saluda River associated with the periodic release of sediments from and draw down of the projects for normal maintenance and repair of the project facilities (the "Sedimentation Release Plan"). A draft proposal of this plan was filed with the FERC June 22, 1988 for the projects. Comments were received from the South Carolina Wildlife and Marine Resources Department (WMD) on June 16, 1988, comments were received from the South Carolina Department of Health and Environmental Control on June 20, 1988 and comments were received from the U S Fish and Wildlife on June 22, 1988 which were filed as a part of the proposed plan. On August 10, 1988 Soft Care filed a letter with FERC responding to FWS comments. On September 9th, FERC acknowledged receipt of the reservoir "Draw Down Sediment Release Plan" as well as Soft Care's August 10th letter. FERC requested supplemental information to determine the adequacy of the proposed plans to minimize impacts on aquatic resources resulting from sediment release.

On May 4, 1989 Aquenergy Systems, Inc. filed a revised sedimentation plan which incorporated several needed modifications to the plan in addition to addressing concerns raised by the FERC. This revised draft plan was circulated to each of the required agencies for their comments. SCDHEC responded with their comments on May 24, 1989; USFWS responded on May 25, 1989; and SCWMD responded on June 8, 1989. The comments of these agencies have been incorporated into the final sedimentation plan for the Pelzer Projects as deemed appropriate by Aquenergy. Attached is the final sedimentation plan and all agency correspondence.

SEDIMENT FLUSHING PLAN
FOR THE UPPER AND LOWER PELZER HYDROELECTRIC-PROJECTS

I. Project Description

The Upper Pelzer Hydroelectric Project consists of a stone masonry, gravity overflow dam, a forebay, a reservoir, a powerhouse next to the forebay and a second powerhouse located in the Pelzer Mill at the end of the forebay, along with associated generating equipment and appurtenant facilities. The dam was constructed prior to 1981. The hydroelectric generating units were installed in 1920 and consist of three units (#1 GE 500 KW located in mill, #2 Westinghouse 750 KW located in powerhouse on canal and #3 Westinghouse 750 KW located in powerhouse on canal) with a total installed capacity of 2,000 KW. The project consists of three S. Morgan Smith vertical turbines and is operated in a strict run of river mode. Average head at the project is approximately 25 feet including four feet of flashboards. The reservoir surface area is approximately 25 acres at full pond.

The Lower Pelzer Hydroelectric Project is located approximately two miles down river from the Upper Project. The project consists of a stone masonry, gravity overflow dam, a reservoir, a powerhouse and associated generating equipment and appurtenant facilities. The dam was constructed in 1893 and the power station was built on the right (west) bank of the river in 1895. The project consists of five units (#1 GE 750 KW, #2 GE 750 KW, #3 GE 750 KW, #4 GE 300 KW and #5 GE 750 KW) with a total installed capacity of 3,300 KW. Turbine units #1 through #4 were manufactured by Stilwell-Bierce and unit #5 is an S. Morgan Smith. All turbine units are horizontal. The project is operated in a strict run of river mode and has an estimated average head of approximately 40 feet, which includes four feet of flashboards. The reservoir surface area is approximately 80 acres at full pond.

II. Project Ability to Sluice Water

The Upper Pelzer Project consists of one sluice gate on the main dam (east bank) non-overflow section. This gate measures approximately six feet wide by six feet high. The canal also consists of one sluice gate which measures approximately four feet high and three feet wide.

The Lower Pelzer Project consists of two sluice gates located next to the powerhouse in the west side of the main river channel on the non-overflow section of the dam. These gates measure approximately nine feet wide by ten feet high.

All sluice gates have manual (cast iron) gear reduction gate raising mechanisms.

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III. Frequency of Drawdown of Water

The Upper Project was sluiced in 1986 and the Lower Project was sluiced the following year (1987). All sedimentation at this time was flushed. It is believed at this time that a minimal accumulation of sediment exists in the projects. This plan proposes flushing both projects at an acceptable time in the fall of 1989 to install sediment accumulation gages throughout the impounded reservoir. The projects would then be flushed again in the fall of 1991 (two years later) with accurate records of sediment accumulation (using the sediment gaging stations) to determine the appropriate frequency of draw downs so as to minimize any negative impact on the environment from large sediment (slugs) releases. FERC and each agency will help interpret the results of the findings (magnitude of sediment buildup) to arrive at an acceptable sediment release interval.

IV. Volume of Sedimentation

At this time, it is believed that no significant accumulation of sediment exists in either project due to the recent sediment flushing (Upper Project 1986, Lower Project 1987). However, data gathered from "sediment accumulation gages" over the next couple of years will help quantify the volume of sediment accumulated over time. Once this data is collected, an engineering firm will help interpret the results (depth of sedimentation "times" area) into a quantifiable volume of sediment.

Reservoir accumulation of sediment depends solely on the natural silt load carried in the river and varies depending on the frequency of high flows. Due to the fact that the Pelzer projects are operated in a strict run-of-river mode, there is an absence of reservoir draw down and refills which will help to minimize upstream turbidity experienced along the reservoir bottom and resettling of heavy silt behind the dam following sediment flushing.

V. Manner of Release of Sediments

A. Flushing

Sediment flushing will be scheduled during months of moderate to high flows, specifically during the months of November, December, January, and February. Aquenergy will attempt to flush the reservoirs when flows are equal to or greater than the mean annual daily flow of 783 cfs. However, should this flow prove to be in excess of that flow at which the reservoir can be flushed without major operational problems, a lower flow guideline will need to be established after an actual reservoir flushing has taken place.

Sediment flushing will not be conducted during fish spawning

FROM: CHI ENERGY

FAX NO.: 8642812634

11-01-99 15:25 P.06

season or hot temperatures unless there is an emergency. In the event an emergency causes an unscheduled draw down or sediment flushing, Aquenergy will immediately file a written notice giving the cause of the emergency, the time it occurred, duration of flushing, estimate of sediment released and any observed impact on the downstream environment.

During sediment flushing, Aquenergy will work closely with the SCWMD, the USFWS, and DHEC in monitoring the dissolved oxygen downstream of the project in order to maintain the DO level at a daily average of 5.0 mg/l.

Aquenergy will attempt to pass 20% of the mean annual daily flow (MADF) for November (157 cfs), 30% of the MADF for December (235 cfs), and 40% of the MADF for January and February (313 cfs), or out-flow equal to in-flow, whichever is less, in the river downstream of the tailrace during sediment flushing operations.

B. Dredging

In the event sediment flushing could not be accomplished without detrimental impacts on the downstream environment, other methods of sediment removal such as "hydraulic dredging" to a suitably diked high land disposal area shall be considered. If hydraulic dredging is proposed then Aquenergy will schedule a meeting with the specified agencies and discuss the dredging plan, and appropriate monitoring strategy and determination of critical water quality conditions that would temporarily stop the dredging. Water quality monitoring parameters should include dissolved oxygen in the impoundment and downstream of the dam. Dissolved oxygen concentration should not be allowed to fall below a daily average of 5.0 mg/l as this will negatively impact fishery resources. Water quality monitoring parameters should include turbidity during the sediment removal. Any dredging should be stopped if turbidity is increased more than 200 Jackson Turbidity Units above ambient conditions as higher turbidity may negatively impact the fish community.

VI. Notification Procedures

Aquenergy will notify the following agencies by phone and in writing at least 14 days prior to reservoir draw down or sediment flushing of the projects:

~~Mr. Nancy J. N. Ferguson~~ David Graves 734-5302
South Carolina Department of Health FAX 734-6216
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

~~Mr. Roger L. Banks~~ Steve Wipe 727-4707
U S Fish and Wildlife Service FAX 727-4218

FROM: CHI ENERGY

FAX NO.: 8642819634

11-01-99 15:25 P.07

Post Office Box 12559
Charleston, South Carolina 29412

~~Dr. James A. Timberman, Jr.~~ Gerrit Jobsis
South Carolina Wildlife and
Marine Resources Department
Post Office Box 167
Columbia, South Carolina 29202

~~Mr. Doug Johns, EQC~~ George Tomlin / Richard Phillips
District Office - Appalachia I
220 McGee Road
Anderson, South Carolina 29621

~~Mr. George Wilson, EQC~~ Doug Johns / Tommy Rogers
District Office - Appalachia II
605 North Main Street
Greenville, South Carolina 29601

Reservoir draw down or sediment flushing will be coordinated with each of the above mentioned agencies as well as any downstream residents which might be affected by the Plan.

All specified agencies will be given the opportunity to be present during the draw down, flushing or dredging operation. If the agencies present believe the quantity of sediment flushed poses a problem for the downstream areas, then the process will be stopped. Aquenergy will also coordinate access to additional personnel for raising and lowering the sluice gates in addition to auxiliary equipment (chain falls, ropes, welders, stop logs, etc.) that might be needed. The turbine/generator unit will be coordinated in this process to create a minimal head prior to the opening of sluice gates (this should help to minimize water turbidity).

FROM: CHI ENERGY

FAX NO.: 8642819634

11-01-99 15:25 P.08

No Sediment Management Plan @ Coneross Just a license article

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proposed location, design and calibration of the monitoring equipment, the method of flow data collection, and a provision for providing flow data to the USGS, the FWS, and the SCDEEC, within 30 days from the date of the agency's request for the data.

The licensees shall include documentation of consultation with the agencies before preparing the plan, copies of agency comments or recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how all the agency comments were accommodated by the plan. The licensees shall allow a minimum of 30 days for the agencies to comment and to make recommendations prior to filing the plan with the Commission.

The licensees shall file the plan with the Commission for approval within 6 months from the date of issuance of this license and, upon approval, shall implement the streamflow monitoring plan. The Commission reserves the authority to require modifications to the plan.

Article 404. In order to protect the fishery resources and water quality in Coneross Creek, the licensees shall avoid sediment flushing from the project impoundment during periods of fish spawning and during the months of June, July, August, or September. Releases of sediment are to be coordinated with appropriate agencies, and notification of releases of sediment is to be provided to the U.S. Fish and Wildlife Service, the South Carolina Department of Health and Environmental Control, and the South Carolina Water Resources Commission, in writing, at least one week prior to the discharge.

Article 405. The licensees, before starting any land-clearing or land-disturbing activities within the project boundaries shall consult with the State Historic Preservation Officer (SHPO).

If the licensees discovers previously unidentified archeological or historic properties during the course of project operation, the licensees shall make every reasonable effort to stabilize the archeological or historic properties and consult immediately with the SHPO.

In either instance, the licensees shall file for Commission approval, and upon approval implement, a cultural resource management plan prepared by a qualified cultural resource specialist after having consulted with the SHPO. The management plan shall include the following items: (1) a description of each discovered property indicating whether it is listed on or eligible to be listed on the National Register of Historic Places; (2) a description of the potential effect on each discovered property; (3) proposed measures for avoiding or

Coneross License Article
FEC Proj. No. 6731

FROM: CHI ENERGY

FAX NO.: 8642819634

11-01-99 15:26 P.09

Example Notification Form

FAXed 1 week prior to opening gate

to: USFWS
SCDNR
SC DHEC

Notification Form Deviation from Normal Operation

Project Name and Owner:

Coneross Hydroelectric Project, No. 6731
Coneross Power Corporation, CHI Energy, Inc.
Contact: Beth Harris 864-281-9630, extension 105
Kenneth Vaught 864-281-9630, extension 103

Description of Deviation

Sluice Gate will be opened and closed.

Reason for Deviation

Passage of Sediment

(Revised Dates)**Date Deviation will begin**

November 2, November 16, November 30,
December 7, December 14

Duration of Deviation

1 day (8 hours each time)

Expected Impact on Downstream Area

No significant impact anticipated. Sediment will be passed.

Date Preconstruction Conference Scheduled:

N/A

Received by: _____

Date: _____

Comments: _____